

**Amendments to the Claims:** This listing of claims will replace all prior versions, and listings, of claims in the application

Listing of Claims:

1. - 8. (Canceled)
9. (Previously Presented) An apparatus comprising:  
  
a diesel engine;  
  
means for controlling an operating mode of the engine; and  
  
an engine exhaust system comprising a catalyst comprising palladium (Pd) supported on a support material and at least one base metal promoter associated with the palladium, wherein said at least one base metal promoter comprises at least one reducible oxide, and wherein the operating mode is defined when substantially all fuel for combustion in the engine is injected into a combustion chamber of the engine prior to the start of combustion during at least a portion of an engine cycle.
10. (Canceled)
11. (Previously Presented) An apparatus according to claim 9, wherein the engine-out exhaust gas produced by the engine operated in the mode wherein substantially all fuel for combustion in the engine is injected into a combustion chamber of the engine prior to the start of combustion during at least a portion of an engine cycle further comprises >500ppm C<sub>1</sub> unburned hydrocarbons.
12. (Previously Presented) An apparatus according to claim 9, wherein a temperature of the engine-out exhaust gas produced by the engine operated in the mode wherein substantially all fuel for combustion in the engine is injected into a combustion chamber of the engine prior to the start of combustion during at least a portion of an engine cycle is below 250°C.
13. (Canceled)

14. (Previously Presented) An apparatus according to claim 9, wherein the at least one reducible oxide is an oxide selected from the group consisting of manganese, iron, cobalt, copper, tin, and cerium and mixtures thereof.
15. (Previously Presented) An engine according to claim 14, wherein the at least one reducible oxide is selected from the group consisting of  $\text{MnO}_2$ ,  $\text{Mn}_2\text{O}_3$ ,  $\text{Fe}_2\text{O}_3$ ,  $\text{CuO}$ ,  $\text{CoO}$ ,  $\text{SnO}_2$  and  $\text{CeO}_2$ .
16. (Previously Presented) An engine according to claim 9, wherein the at least one reducible oxide is dispersed on the support material.
17. (Previously Presented) An engine according to claim 9, wherein the support comprises particulate bulk reducible oxide.
18. - 21. (Canceled)
22. (Currently Amended) An apparatus according to claim 9, wherein the catalyst further comprises platinum (Pt).
23. (Previously Presented) An apparatus according to claim 49, wherein the Pd and Pt are both supported on the same support material.
24. (Previously Presented) An apparatus according to claim 49, wherein the catalyst comprises an arrangement selected from the group consisting of:
  - (i) the supported Pd and the at least one base metal promoter on a first substrate monolith and supported Pt on a second substrate monolith, wherein the second substrate monolith is disposed downstream of the first substrate monolith;
  - (ii) the supported Pd and the at least one base metal promoter on an upstream part of a substrate of a substrate monolith and the supported Pt on a downstream part of the substrate monolith;
  - (iii) the supported Pt in a first layer on a substrate and the supported Pd and the at least one base metal promoter are disposed in a second layer overlying the first layer; and

- (iv) a substrate monolith comprising a single layer wherein the Pd and the at least one base metal promoter are supported on a first support material and the Pt is supported on a second support material.

25. - 27. (Canceled)

- 28. (Previously Presented) An apparatus according to claim 9, wherein the Pd or Pt support material is selected from the group consisting of alumina; silica-alumina; ceria; magnesia; titania; zirconia; a zeolite; and mixtures, composite oxides or mixed oxides of any two or more thereof.

29. - 32. (Canceled)

- 33. (Previously Presented) An apparatus according to claim 9, wherein the catalyst contains from 0.1 to 30.0% by combined weight of platinum group metal based on the total weight of supported catalyst.
- 34. (Previously Presented) An apparatus according to claim 22, wherein the catalyst contains a weight ratio of from 100:0 to 10:90 Pd:Pt.
- 35. (Previously Presented) An apparatus according to claim 49, wherein the catalyst contains from 0.1 to 10.0% Pt by weight based on the total weight of the catalyst and from 0.1 to 20% Pd by weight based on the total weight of the catalyst.

36. - 39 (Canceled)

- 40. (Previously Presented) An apparatus according to claim 9, wherein the exhaust system further comprises a particulate filter disposed downstream of the supported Pd.

41. - 43 (Canceled)

- 44. (Previously Presented) An apparatus according to claim 9, wherein the diesel engine is a homogeneous charge compression ignition (HCCI) diesel engine or a Dilution Controlled Combustion System (DCCS) diesel engine.
- 45. (Canceled)
- 46. (Canceled)

47. (Previously Presented) An apparatus according to claim 9, wherein the control means controls the engine to operate in a conventional direct injection diesel engine mode during a portion of the engine cycle.
48. (Previously Presented) An apparatus according to claim 47, wherein the portion of the engine cycle wherein the engine is controlled to operate in the conventional direct injection diesel engine mode comprises high engine load.
49. (Previously Presented) An apparatus according to claim 22, wherein the Pt is supported on a support material.
50. (Previously Presented) An apparatus according to claim 22, wherein the catalyst comprises an arrangement selected from the group consisting of:
- (i) the supported Pd and the at least one base metal promoter on a first substrate monolith and the Pt on a second substrate monolith, wherein the second substrate monolith is disposed downstream of the first substrate monolith;
  - (ii) the supported Pd and the at least one base metal promoter on an upstream part of a substrate monolith and the Pt on a downstream part of the substrate monolith; and
  - (iii) the Pt in a first layer on a substrate monolith and the supported Pd and the at least one base metal promoter disposed in a second layer overlying the first layer.
51. (Previously Presented) An apparatus according to claim 49, wherein the catalyst contains from 0.1 to 30.0% by combined weight of platinum group metal based on the total weight of supported catalyst.
52. (Previously Presented) A process for treating engine-out exhaust gas from a diesel engine operated in a mode wherein substantially all fuel for combustion is injected into a combustion chamber prior to the start of combustion, which process comprising contacting the exhaust gas with a catalyst comprising palladium supported on a support material and at least one base metal promoter associated with the palladium, wherein said at least one base metal promoter comprises at least one reducible oxide.

53. (Previously Presented) An apparatus according to claim 14, wherein the at least one reducible oxide is an oxide of cerium.
54. (Previously Presented) An apparatus according to claim 15, wherein the at least one reducible oxide is  $\text{CeO}_2$ .
55. (Previously Presented) A process according to claim 52, wherein the at least one reducible oxide is an oxide of cerium.
56. (Previously Presented) A process according to claim 52, wherein the at least one reducible oxide is  $\text{CeO}_2$ .
57. (Previously Presented) An apparatus according to claim 9, wherein an engine out exhaust gas produced during the operating mode comprises >2000 ppm carbon monoxide.
58. (Previously Presented) A process according to claim 52, wherein the engine-out exhaust gas contains >2000 ppm carbon monoxide.
59. (New) An apparatus according to claim 9, wherein the support consists of the at least one reducible oxide.
60. (New) A process according to claim 52, wherein the support consists of the at least one reducible oxide.
61. (New) An apparatus according to claim 9, wherein ceria serves as both the support material and as the base metal promoter.
62. (New) A process according to claim 52, wherein ceria serves as both the support material and as the base metal promoter.